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**UNIVERSITÄT LEIPZIG**

**Fakultät für Physik und Geowissenschaften**

Institute für Physik

# **Physik-Kolloquium**

**Dienstag, den 19.06.2012, 17:00 Uhr**

**Prof. Dr. Hilbert von Löhneysen**

Karlsruhe Institute of Technology (KIT), Physics Institute, Institute of Nanotechnology, and DFG Center for Functional Nanostructures

## **Superconductors and ferromagnets in contact: from thin films to nanostructures**

Metals can acquire different states that in many cases are mutually exclusive. A prominent example is the competition between magnetism and superconductivity: while in ferromagnets such as iron the elementary magnets carried by the electron (called "spin") are all aligned parallel to each other, the electrons in superconductors form pairs with antiparallel alignment of their spins. What happens if a superconductor and a ferromagnet are brought into close contact? This can be achieved by successive evaporation of the two materials on top of each other. Although this question has been addressed for several decades, new features have emerged in recent years that will be reviewed in this talk. I will give several examples of how superconductivity and ferromagnetism affect each other and how nanostructures formed by these materials can be used to obtain insights into the quantum-mechanical behavior of electrons at the interface that perhaps may lead to electronic applications.

**Ort: Hörsaal für Theoretische Physik, Linnéstraße 5**

**Alle Teilnehmer sind ab 16:30 Uhr zu Kaffee vor dem Hörsaal eingeladen.**